Increasing Processing Fluency in the Classroom Instructional System

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Abstract

In the classroom environment, there are many barriers to students' effective language learning. One significant cause can be student perception of the classroom instructional system. If classroom instructions, materials, and activities do not allow students to successfully process the information, then negative reactions can occur. This fluency is a measure of the ease with which the mind processes information, and research has shown that a positive perception of that information is an indicator of higher processing fluency. Further research has revealed that *how* information is presented can have a significant impact on its perception. Information presented with clarity, simplicity, and repetition can create a higher positive perception. This paper examines the significance of the research and how teachers can design a better classroom instructional system to increase processing fluency and create a more positive student perception of the learning process.

Increasing Processing Fluency in the Classroom Instructional System

There are many barriers to students' effective language learning in the classroom. A significant barrier can be students' affective filters, or negative emotional responses, to the classroom instructional system. Often, it is not clear what causes these negative reactions, and teachers are often left guessing at the reasons, reusing materials and repeating activities that receive a positive response and seem to work without knowing why. This paper examines research into the processing fluency

and positive perception of information and provides a better understanding of what causes positive or negative emotional responses to information. Suggestions are given for ways for teachers to better design a classroom instructional system to increase processing fluency and increase students' positive perceptions of the learning process.

Literature Review

Learning Barriers

There are many obstacles in and out of the language-learning classroom. Krashen (1982) proposes the *affective filter hypothesis* to describe how students' emotional responses to the environment affect their ability to learn. Most of these emotional responses can be grouped in three categories of motivation, self-confidence, and anxiety. When students' emotional responses are negative, their affective filter is described as *high*, or *up*. This filter can directly or indirectly interfere with students’ abilities to receive process, understand, and/or produce language. These negative emotions can be caused by many different sources and are often difficult to identify. By decreasing these negative reactions of students in class, teachers can lower their affective filters and remove barriers to language learning.

Processing Fluency

Processing fluency is the ease with which the mind processes information (Alter & Oppenheimer, 2009). Information that is easy to understand has high processing fluency; information with low processing fluency is difficult to understand. While a seemingly simple concept, the processing fluency of information can play a significant role in how people react to that information, especially when many people are unaware of its influence (Winkielman et al., 2003; Reber et al., 2004).

Processing Fluency and Perception

Research has shown that processing fluency affects the perception of information (Reber et al., 1998). In short, the higher the processing fluency, the more positive the perception can be. The opposite holds true for lower processing fluency: the human mind will have a negative perception of the information that is difficult to process.

Further research has revealed important findings regarding the connection between how information is presented and positive perception, indicating that it may be possible to increase the processing fluency of information by changes in seemingly insignificant ways.

Something as simple as the clarity with which information is presented can have an effect on positive perception. For example, Song and Schwarz (2008) found that when written in a more difficult-to-read font, instructions for a recipe or exercise regimen were rated as more difficult or complicated by readers. Novemsky et al. (2007) found that consumers were twice as likely to buy a product when its features were listed in an easier-to-read font.

Simplicity in terms of pronunciation and rhyming sounds can also play a role in positive perception. Song and Schwarz (2009) found that difficult-to-pronounce, fictional food additive names, such as *Hnegriptrom*, were rated as more dangerous than others easier to pronounce. Also, fictional amusement park rides with difficult-to-pronounce names, such as *Vaiveahtoishi* as compared to *Chunta*, were rated more dangerous and more likely to make riders sick. McGlone & Tofighbakhsh (2000) found that aphorisms describing human behavior were written using rhyming words, such as “Woes unites foes” and “What sobriety conceals, alcohol reveals” were rated to be more accurate in describing the relationship or situation. The same aphorisms, when written with semantically equivalent but non-rhyming words, such as

“Woes unite enemies” and “What sobriety conceals, alcohol unmasks,” were judged to be less accurate.

The effect of simplicity and difficulty on perception can also have a physical manifestation. Cannon et al. (2010) found that when subjects viewed easy-to-pick-up or difficult-to-pick-up objects, there was a measurable physical response. When easy-to-pick-up objects were viewed, muscle activity associated with smiling were detected, indicating a more positive perception of an activity that was easy to complete.

Another factor that can affect the perception of processing fluency is repetition. Zajonc (2001) found that when subjects were exposed to unknown Chinese characters, they gave a more positive rating to characters they had seen more than others, indicating that repetition could create a more positive perception.

Summary

In summary, students’ perceptions of the classroom environment can affect their language learning, causing negative emotions, such as confusion, anxiety, and frustration. Research into processing fluency has shown that the human mind has a more positive perception of information that is easy to process. Further, the perception of information can be affected by how that information is presented. Information that is presented with clarity, simplicity, and repetition can create a more positive perception, indicating a higher processing fluency.

With this better understanding of how the presentation of information affects the perception, teachers can incorporate clarity, simplicity, and repetition into the design of the classroom instructional system to increase students’ positive perceptions of the class and reduce barriers to their learning.

Obviously, new content in the target language can be difficult; however, the classroom instructional system that delivers that new content and

allows students to process it should not be a barrier. To put it simply, new content can be hard, but learning it should not be.

Discussion

In this section of the paper, three main points will be discussed: 1) the classroom instructional system; 2) incorporating clarity, simplicity, and repetition into that system; and 3) evaluating the classroom instructional system from students' perspectives.

Classroom Instructional System

For the purposes of this discussion, the classroom instructional system consists of three main components: instructions, materials, and activities. Its main goal is creating a learning environment where students can successfully process and learn the class content. In the case of the language-learning classroom, the content is the target language. It is important to remember that this discussion is focusing on the classroom instructional system—the framework within which students are learning—and not the content.

Instructions. Classroom instructions can come in three forms: oral, written, and physical. Oral instructions are spoken by the teacher. Written instructions are on the printed materials, chalkboard, or media screen. Physical instructions are the teacher’s physical movements to demonstrate or model the expected behavior. Instructions are very important as they introduce the framework of the activity and guide the students through the process.

Materials. Classroom materials can consist of books, handouts, audio, video, etc. These materials provide the instructions, content, examples, and other information students need to successfully function in class. When working independently of the teacher, it is often the only reference students have to help them understand the process and complete the activity.

Activities. Classroom activities can range from silent and passive to loud and active. These activities are of vital importance because they provide the opportunity for students to process and practice the content to develop skill and confidence.

Incorporating Clarity, Simplicity, and Repetition

When designing and evaluating a classroom instructional system, it is important to keep clarity, simplicity, and repetition in mind at all stages.

Clarity. For a better understanding of clarity and its role in the classroom instructional system, it is valuable to consider its definition, "clearness," and its synonyms: *certainty*, *comprehensibility*, and *unambiguity*. With these terms in mind, the following guidelines are proposed:

- Instructions—spoken, written, and physical—are clear and audible/legible/visible.
- Materials are organized and well formatted.
- Students understand expected behavior and outcomes for activities.

Simplicity. For a better understanding of simplicity and its role in the classroom instructional system, it is valuable to consider its definition, "absence of complication," which does not necessarily mean "easiness." Again, the content can be challenging, but the system to learn that content should not be. The synonyms of simplicity can be ease, obviousness, and straightforwardness. With these terms in mind, I propose the following guidelines:

- Instructions are delivered at an appropriate comprehension level.
- Materials are written at an appropriate comprehension level.
- Students are able to successfully complete activities.

Repetition. For a better understanding of repetition and its role in the classroom instructional system, it is valuable to consider its definition,

“doing again,” and its synonyms: *practice* and *reproduction*. With these terms in mind, I propose the following guidelines:

- Instructions are repeated many times to ensure comprehension and familiarity.
- Materials (new and old) are presented in a consistent format and manner.
- Activities have consistent format and structure.
- Content is reviewed through repeated use of activities throughout the course.

Evaluating From Students' Perspectives

While it is important for teachers to consider the clarity, simplicity, and repetition of the classroom instructional system, an equally important technique is to examine the system from a student’s point of view. By looking at the instructions, materials, and activities through the eyes of a typical student, teachers can often discover potential problems or difficulties they might not be aware of when in ‘teacher mode.’ In this section, the focus will be on the opposites of clarity, simplicity, and repetition, and questions the teacher can ask when looking for possible causes of students’ negative emotional responses.

Clarity. Some antonyms of clarity, to help for a better assessment, are *unintelligibility* and *ambiguity*. When viewing the classroom instructional system from a student’s point of view, the teacher should ask these questions:

- Do I understand what I am supposed to do from the teacher’s instructions?
- Are the class materials clear and understandable?
- Do I know what I am supposed to do in this activity?

Simplicity. Some antonyms of simplicity, to help for a better assessment, are *difficulty*, *complexity*, and *complication*. When viewing the classroom instructional system from a student's point of view, the teacher should ask these questions:

- Is my teacher speaking at a pace and level I can understand?
- Do I know the words and grammar in the materials? Are they at my level?
- Can I successfully complete this activity?

Repetition. An antonym of repetition, to help for a better assessment, is *isolation*. When viewing the classroom instructional system from a student's point of view, the teacher should ask these questions:

- Did I understand the teacher the first time he or she gave the instructions?
- Am I familiar with the format and structure of this class material?
- Have I done this activity enough times to learn the content?

If the answers to any of the above questions are "no," then the classroom instructional system at the potentially problematic point should be reassessed and modified.

Conclusions

In the classroom, teachers often do not understand how and why students react in certain ways to the process of learning. Research into processing fluency and how the human mind reacts to information can provide an invaluable understanding of what is going on inside their heads. The importance of the role of clarity, simplicity, and repetition in the presentation of information cannot be overstated. Armed with this knowledge, teachers can design a better classroom instructional system that increases students' positive perceptions of the classroom experience and enables them to more successfully learn.

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